

ABSTRACT

The present invention is a neutralization system for particulates including germs, organisms, and airborne pathogens. The invention includes a duct, a lamp with at least one ultraviolet tube therein, an optically transmissible element, and a light panel. The duct has an exterior surface with openings and an interior volume through which an air stream is directed. The lamp is fastened to the exterior surface of the duct over a first opening. The optically transmissible element is secured between lamp and duct so as to prevent the air stream from contacting the ultraviolet tubes within the lamp. The light panel is comprised of a frame about a porous mat composed of a plurality of end emitting optical fibers. The panel is slidably disposed through a second opening so as to bisect the air stream. A first end of each end emitting optical fiber is positioned so as to allow ultraviolet light from the lamp to enter the fiber. Ultraviolet light is projected from a second end of each fiber within the porous mat so that individual light beams overlap to form a contiguous field. In alternate embodiments, ultraviolet light is communicated into a single light panel from two or more lamps. In yet other embodiments, two or more light panels are provided within a single duct. The present invention is applicable to a variety of ducts, examples including but not limited to cooling, heating and ventilation, through which a contaminated air stream is directed.